Ambient Water Quality

The ambient water quality, while listed as only one item under aquifer characteristics in Table 4.1, deserves particular emphasis because of its special significance in formulating a strategy for ground water management. For example, the state of Colorado has based a classification system for aquifers partially on the mineral quality because of its relationship to its suitability for various beneficial uses. The classification system formulated by the state of Connecticut is, to some degree, also related to the quality of the water in the aquifer.

In addition, knowledge about the degree of chemical contamination in aquifers can help to indicate areas of high vulnerability to aid in decisions about the type of regulations needed for contamination control as well as cleanup. Water quality data resulting from the long history of contamination on Long Island, including contamination from septic tanks and agricultural and industrial practices, has led to regulations or guidelines on sewering, density of residential land use, septic tank cleaner use practices, and underground storage of petroleum products and chemicals. Similarly, knowledge of the vulnerability of ground water to contamination from leaking chemical and petroleum product storage tanks, obtained through surveys of ground water quality, has led to the development of storage tank regulations in Santa Clara County, California, and in Cape Cod, Massachusetts.

Water quality data bases have traditionally contained information on concentrations of a limited number of inorganic ions. For the purpose of contamination control, ground water with potential for contamination should be analyzed for a range of organic contaminants that have frequently been found, such as pesticides, organic solvents, and petroleum components. The lack of a good water quality data base has made decisions about ground water contamination control difficult for most states. Because contamination is frequently local and may move quite slowly in an aquifer, sampling for chemical contamination needs to be extensive and carefully done.

In order to obtain adequate information on ambient water quality, the state of Florida is now developing a comprehensive ground water monitoring network to provide information about the quality of its polluted and pristine ground water. This testing program will include monitoring for the EPA list of 129 priority pollutants and provide baseline information that will be useful in evaluating ground water protection and restoration needs as well as in evaluating the effectiveness of prevention and restoration programs.